## REMARKS

The above amendments and these remarks are responsive to the Office action dated December 13, 2004. In the Office action, claims 6, 7 and 9 were rejected under 35 U.S.C. 102(b) based on U.S. Pat. No 6,312,300 to Asai, claims 1-3 and 5 were rejected under 35 U.S.C. 103(a) based on U.S. Pat. No. 6,793,546 to Matsuda in view of U.S. Pat. No. 4,294,203 to Jones, claims 1-3 and 8 were rejected under 35 U.S.C. 103(a) based on Asai in view of Jones, and claims 4 and 10 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Applicants thank the Examiner for the careful consideration of the application and the indications of allowability. Applicants have rewritten claims 4 and 10 in independent form as new claims 14 and 18. Applicants traverse the rejections, but nevertheless amends the claims 1 and 6, and adds new claims as shown above. In view of the amendments above, and the remarks below, applicants respectfully request reconsideration of the application under 37 C.F.R. § 1.111 and allowance of the pending claims.

Claim 1, 2, 3, and 5

Before considering the rejections based on Jones in combination with Matsuda and separately in combination with Asai, it is helpful to first examine the different problems to which the invention of claim 1 and Jones are respectively addressed. As discussed in the Background of the Specification of the subject application, one problem addressed by the invention claimed in claim 1 is overcooling of an engine of a watercraft that is cooled by an open loop cooling system, when the watercraft is operated in a cold body of water. Water taken into the cooling system and supplied directly to the engine may overcool the engine, causing undesirable friction and wear.

In contrast, Jones is directed to an automobile engine body formed in two pieces: a lower cylinder assembly 10 and a one-piece head and upper cylinder assembly 12. To prevent cracking at the interface between the lower and upper assemblies 10, 12 due to intense pressure within the piston chamber, a removable liner 14 is fitted within the assemblies 10, 12. To cool the liner 14 and surrounding upper assembly 12, a water cavity 34 is provided between the liner 14 and upper assembly 12. Since water directly touches the liner 14, it is referred to as a "wet" liner. Use of a one-piece head and upper block assembly 12 that extends down the entire length of the cylinder cavity would be excessive in weight and bulky (Col. 1 Lines 40-41), so a shortened upper block assembly 12 is used, and consequently a water cavity of shortened axial length is used. This has the recited advantage of reducing the weight of the upper assembly 12, as well as enabling a higher exhaust temperature which in turn provides more energy to be recovered by a turbocharger. (See Col. 11 Lines 7-25.)

But, while Jones claims there are certain advantages to using a shortened axial length water jacket in an mid-split engine with a wet removable cylinder liner, Jones does not suggest use of such a shortened axial length water jacket in all engines. In fact, Jones acknowledges to the contrary that "it has generally been considered good practice in a liquid cooled engine to extend the cooling jacket over substantially the entire axial length of the cylinder cavity." (Col. 1 Lines 36-40.)

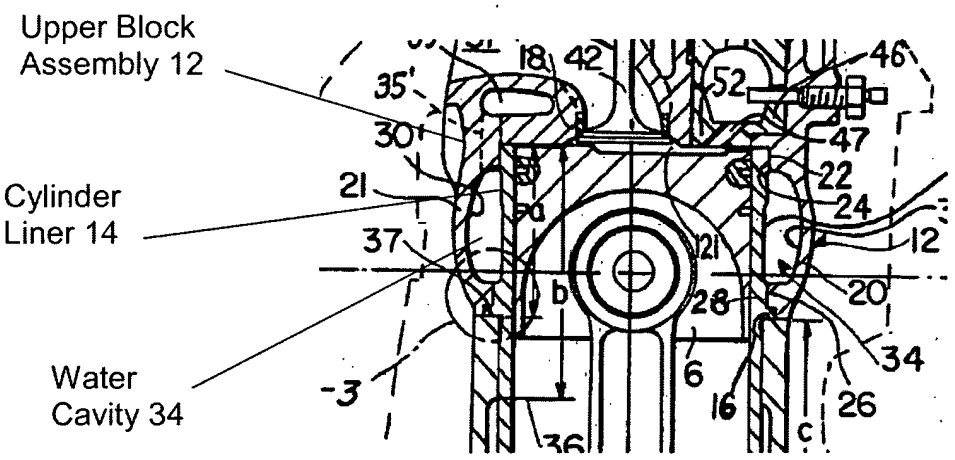
To clarify the differences between the invention of claim 1 and the cited prior art, claim 1 has been amended to move "an open-looped cooling system configured to take in water from outside the watercraft, for use as cooling water to cool the engine and thereafter discharge the cooling water outside the watercraft" from the preamble to the body of the claim. In addition, claim 1 has been amended to recite, "a cylinder block having a water jacket formed inside

thereof, the water jacket being coupled to the open looped cooling system such that the cooling water flows through the water jacket," and further having "a piston that reciprocates within the cylinder block, wherein a dimension of the water jacket in a reciprocation direction of the piston is equal to or less than a half of a reciprocation distance of the piston."

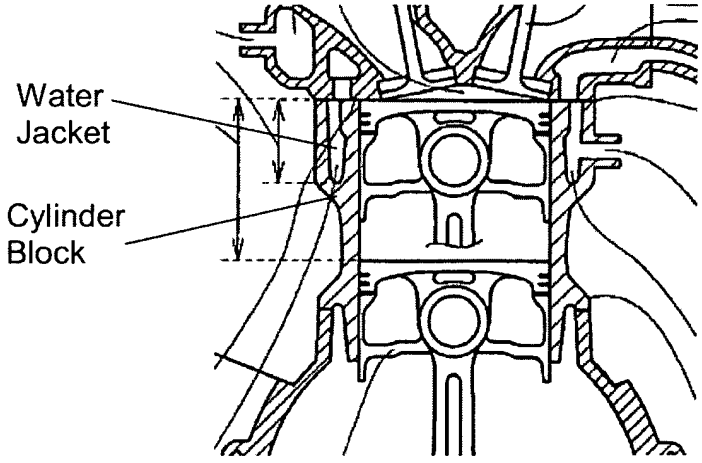
In response to the rejections under 35 U.S.C. 103(a) based on the combinations of Asai and Jones and Matsuda and Jones, applicants respectfully submit that neither combination renders amended claim 1 obvious. Both Asai and Matsuda relate to watercraft with open-looped cooling systems, but neither makes any mention of the problem of overcooling an engine in cold water, nor providing water jackets with reduced dimensions in a reciprocation direction of a piston. Jones, as discussed above, neither relates to overcooling, nor watercraft, nor open-looped cooling systems, but rather relates to automobile engines with removable cylinder liners. It would be illogical to suggest that the engine of Jones would use an open loop cooling system which continuously takes in cooling water from a body of water during travel, because automobiles do not generally travel on water. Further, use of cold water from an open body of water would work against the alleged benefits of Jones, namely, that hot exhaust gases improve turbocharger performance. (See Col. 11 Lines 20-25.) Indeed, undesirable overcooling may result if an open looped cooling system were applied to the engine of Jones, causing increased friction between the pistons and engine block due to metal contraction.

Claim 1, as amended, requires "a cylinder block having a water jacket formed inside thereof." The water cavity 34 of Jones is not formed inside of, i.e. internal to, a cylinder block. Rather, as discussed above and illustrated below, the water cavity 34 of Jones is formed in between upper block assembly 12 and cylinder liner 14, such that the water cavity is external to the upper block assembly 12. Indeed, most heat that is dissipated by the water flowing through

the water cavity 34 would presumably come from the cylinder liner 14, not the upper block assembly 12. This difference would remain even if the cylinder liner 14 were welded into place or otherwise permanently attached to the upper block assembly 12, and different machining processes would be required to manufacture the water cavity 34 and a water cavity that is formed inside of cylinder block.




*Jones - Fig. 1*




*Subject Application - Fig. 4*

Applicants respectfully submit that it would not have been obvious to one of ordinary skill in the art to combine the teachings of Jones with Matsuda, or Jones with Asai, due to conflicting operational goals, and further that even the combined teachings do not disclose each and every feature of amended claim 1. Therefore, applicants respectfully submit that the rejections of amended claim 1 under 35 U.S.C. 103(a) based on the combination of Asai and Jones, and the combination of Matsuda and Jones, are improper and do not render amended claim 1 obvious. In view of the above, applicants respectfully submit that claim 1, as well as dependent claims 2, 3, and 5, are allowable.

Claim 4

Claim 4, which was indicated as allowable, has been cancelled and rewritten in independent form as new claim 14.

Claims 6-9

Amended claim 6 recites that "at least one of the water drawing passages is configured to extend from the water jet pump to the engine through an auxiliary device." One exemplary embodiment including such a feature is described at Paragraph [0051] in the Specification and is illustrated in Fig. 7. According to this exemplary embodiment, cooling water is first supplied to an auxiliary device, for example, an oil cooler, which is required to be cooled at a lower temperature, thereby pre-heating the cooling water by heat-exchange. Then, the pre-heated cooling water is supplied to an engine to inhibit a cylinder block of the engine from being cooled excessively. None of the prior art references, either alone or in combination with the other cited

references, discloses a water passage configured to extend from the water jet pump to the engine through an auxiliary device, in combination with the other claimed features recited in amended claim 6. Therefore, Applicants respectfully submit that claim 6, as well as dependent claims 7-9, are allowable.

Claim 10

Claim 10, which was indicated as allowable, has been cancelled and rewritten in independent form as new claim 18.

Claim 11

New claim 11 recites "wherein the water jet pump is provided with a pump casing which contains fairing vanes, and the water drawing holes are configured to penetrate a wall portion of the pump casing above the fairing vanes." One exemplary embodiment featuring such a construction is described at Paragraph [0044] and illustrated in Figs. 1 and 5. According to this exemplary embodiment, the static-pressure of the water flow within the pump casing is stabilized by the fairing vanes. Therefore, in accordance with this embodiment, the cooling water is taken in from the stable static-pressure region of the water flowing within the pump casing through the water drawing holes. Applicants respectfully submit that the configuration of new claim 11 is not disclosed or suggested by any of the cited references, either alone or in combination with the other cited references.

Claim 12

New claim 12 recites that the "cylinder block is placed downstream of the cylinder head

in a flow direction of the cooling water in the cooling system." One potential advantage of such a construction is that the cylinder block is inhibited from being excessively cooled while the cylinder head is being efficiently cooled. Applicants respectfully submit that the configuration of new claim 12 is not disclosed or suggested by any of the cited references, either alone or in combination with the other cited references.

Claim 13

New claim 13 recites that "a plurality of water drawing holes of the water drawing passages are circumferentially arranged on an outer periphery of the water jet pump." One potential advantage of such a configuration is that the water flow within the pump casing may have a substantially equal static-pressure stability in a circumferential direction of the pump casing. Therefore, water having a substantially equal static-pressure may be taken in through the water drawing holes claimed in new claim 13. Applicants respectfully submit that the configuration claimed in new claim 13 is not disclosed or suggested by any of the cited references, either alone or in combination with each other.

Claim 14-17

Original claim 4, which was indicated as allowable, has been rewritten has new claim 14. Claims 15-17 depend from claim 14 and are also believed allowable.

Claim 18-21

Original claim 10, which was indicated as allowable, has been rewritten has new claim 18. Claims 19-21 depend from claim 18 and are also believed allowable.

Claim 22

Claim 22 depends from claim 1 and recites additional structural elements of the cylinder block, which further distinguish from the removable cylinder liner of Jones. For the reasons stated above with regard to claim 1, claim 22 is also believed allowable.

Applicants believe that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, applicants respectfully request that the Examiner issue a Notice of Allowability covering the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, to: Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on May 12, 2005.

Josi Bridges

Respectfully submitted,

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